

CLAIMS

What Is Claimed Is:

1 1. A disk blade scraper for a tillage implement having a frame, a
2 horizontal shaft suspended from the frame, a plurality of rotating disk blades
3 arranged in laterally spaced relationship on the shaft, a hub spool surrounding the
4 shaft between at least a pair of adjacent disk blades wherein a first end of the hub
5 spool contacts one of the pair of adjacent disk blades thereby creating a transition
6 joint between the first end of the hub spool and a surface of the one of the pair of
7 adjacent disk blades, the scraper comprising:

8 a bracket connected to the frame; and

9 a rotating disk mounted to the bracket, the rotating disk having an axis of
10 rotation and a circumferential edge parallel to the axis of rotation,

11 wherein the bracket is connected to the frame and the rotating disk is
12 mounted to the bracket such that the circumferential edge of the rotating disk is
13 adjacent the transition joint.

1 2. The scraper of claim 1 wherein:

2 the circumferential edge of the rotating disk contacts the transition joint.

1 3. The scraper of claim 1 wherein:

2 an uppermost edge of the rotating disk does not extend above an
3 uppermost edge of an adjacent disk blade.

1 4. The scraper of claim 1 wherein:

2 the surface of the one of the pair of adjacent disk blades is concave, an
3 annular depression is formed in a region of the surface surrounding the transition
4 joint, and the circumferential edge of the rotating disk is located within the
5 depression.

1 5. The scraper of claim 1 wherein:

2 the circumferential edge of the rotating disk is 0.4 inches or less from the
3 transition joint.

1 6. The scraper of claim 1 wherein:
2 the circumferential edge of the rotating disk is 0.03 to 0.13 inches from the
3 transition joint.

1 7. The scraper of claim 1 wherein:
2 an outermost edge of the rotating disk does not extend beyond an
3 outermost edge of an adjacent disk blade.

1 8. A disk blade scraper for a tillage implement having a frame, a
2 horizontal shaft suspended from the frame, a plurality of rotating disk blades
3 arranged in laterally spaced relationship on the shaft, a hub spool surrounding the
4 shaft between at least a pair of adjacent disk blades wherein a first end of the hub
5 spool contacts one of the pair of adjacent disk blades thereby creating a transition
6 joint between the first end of the hub spool and a surface of the one of the pair of
7 adjacent disk blades, the scraper comprising:
8 a bracket connected to the frame; and
9 an elongated bar mounted to the bracket, the bar having a longitudinal axis
10 and a scraping surface at an end of the bar farthest from the bracket,
11 wherein the bracket is connected to the frame and the bar is mounted to
12 the bracket such that the scraping surface is adjacent the transition joint and an
13 imaginary straight line including the longitudinal axis intersects the hub spool if the
14 imaginary straight line is extended beyond the end of the bar.

1 9. The scraper of claim 8 wherein:
2 the scraping surface contacts the transition joint.

1 10. The scraper of claim 8 wherein:
2 the scraping surface is 0.4 inches or less from the transition joint.

- 1 11. The scraper of claim 8 wherein:
2 the scraping surface is 0.03 to 0.13 inches from the transition joint.
- 1 12. The scraper of claim 8 wherein:
2 the scraping surface has at least a portion at an angle with respect to the
3 longitudinal axis of the bar.
- 1 13. The scraper of claim 8 wherein:
2 the bar has a circular cross-section.
- 1 14. The scraper of claim 8 wherein:
2 the bar has a square cross-section.
- 1 15. The scraper of claim 8 wherein:
2 the surface of the one of the pair of adjacent disk blades is concave, an
3 annular depression is formed in a region of the surface surrounding the transition
4 joint, and the scraping surface is located within the depression.
- 1 16. The scraper of claim 8 further comprising:
2 a second elongated bar mounted to the bracket, the second bar having a
3 scraping surface at an end of the second bar farthest from the bracket,
4 wherein a second transition joint is formed between a second end of the
5 hub spool and a surface of the other of the pair of adjacent disk blades, and
6 wherein the bracket is connected to the frame and the second bar is
7 mounted to the bracket such that the scraping surface of the second bar is
8 adjacent the second transition joint.
- 1 17. The scraper of claim 16 wherein:
2 the scraping surface of the second bar contacts the second transition joint.
- 1 18. A disk blade scraper for a tillage implement having a frame, a
2 horizontal shaft suspended from the frame, a plurality of rotating disk blades

3 arranged in laterally spaced relationship on the shaft, a hub spool surrounding the
4 shaft between at least a pair of adjacent disk blades wherein a first end of the hub
5 spool contacts one of the pair of adjacent disk blades thereby creating a transition
6 joint between the first end of the hub spool and a surface of the one of the pair of
7 adjacent disk blades, the scraper comprising:

8 a bracket connected to the frame; and
9 an integral scraper blade mounted to the bracket, the scraper blade having
10 a first end adjacent the mounting bracket, a first side and a second opposed side
11 extending downwardly from the first end, the first side being shorter than the
12 second side, and an opposite scraping end extending between the first side and
13 the second side, the scraping end and the second side of the scraper blade
14 meeting at a junction point,

15 wherein the bracket is connected to the frame and the scraper blade is
16 mounted to the bracket such that the first side is further from the hub spool than
17 the second side, and the junction point is adjacent the transition joint.

1 19. The scraper of claim 18 wherein:
2 the scraping end has a thickness in a direction normal to an outer surface
3 of the scraper blade not exceeding a cross-sectional thickness of the first end in
4 the direction.

1 20. The scraper of claim 18 wherein:
2 the surface of the one of the pair of adjacent disk blades is concave, an
3 annular depression is formed in a region of the surface surrounding the transition
4 joint, and the junction point is located within the depression.

1 21. The scraper of claim 18 wherein:
2 the junction point contacts the transition joint.

1 22. The scraper of claim 18 wherein:
2 the junction point is 0.4 inches or less from the transition joint.

1 23. The scraper of claim 18 wherein:

2 the junction point is 0.03 to 0.13 inches from the transition joint.

1 24. The scraper of claim 18 wherein:

2 the scraping end contacts the surface of the one of the pair of adjacent disk
3 blades.

1 25. The scraper of claim 18 wherein:

2 the scraping end is 0.4 inches or less from one of the pair of adjacent disk
3 blades.

1 26. The scraper of claim 18 wherein:

2 the scraping end is 0.03 to 0.13 inches from one of the pair of adjacent disk
3 blades.

1 27. The scraper of claim 18 wherein:

2 the scraping end has a curved edge.

1 28. A disk blade scraper for a tillage implement having a frame, a

2 horizontal shaft suspended from the frame, a plurality of rotating disk blades
3 arranged in laterally spaced relationship on the shaft, a hub spool surrounding the
4 shaft between at least a pair of adjacent disk blades wherein a first end of the hub
5 spool contacts one of the pair of adjacent disk blades thereby creating a transition
6 joint between the first end of the hub spool and a surface of the one of the pair of
7 adjacent disk blades, the scraper comprising:

8 a bracket connected to the frame; and

9 a scraper blade mounted to the bracket, the scraper blade having a first
10 end, a second end opposite the first end, a first side and a second opposed side
11 extending downwardly from the first end, the second side including a scraping
12 surface, the second side meeting the second end at a junction point,

13 wherein the surface of the one of the pair of adjacent disk blades is convex,
14 and

15 wherein the bracket is connected to the frame and the scraper blade is
16 mounted to the bracket such that all of the scraper blade is positioned above the
17 hub spool, the scraping surface is positioned adjacent the convex surface, and the
18 junction point is adjacent the transition joint.

1 29. The scraper of claim 28 wherein:
2 the scraper blade is positioned on both sides of a vertical normal line to a
3 center axis of the hub spool.

1 30. The scraper of claim 28 wherein:
2 the scraping surface is positioned behind the center axis of the hub spool in
3 relation to a direction of movement of the tillage implement.

1 31. The scraper of claim 28 wherein:
2 the scraping surface contacts the convex surface.

1 33. The scraper of claim 28 wherein:
2 the scraper blade is rectangular.

1 34. The scraper of claim 28 wherein:
2 the junction point is 0.4 inches or less from the transition joint.

1 35. The scraper of claim 28 wherein:
2 the junction point is 0.03 to 0.13 inches from the transition joint.

1 36. A disk blade scraper for a tillage implement having a frame, a
2 horizontal shaft suspended from the frame, a plurality of rotating disk blades
3 arranged in laterally spaced relationship on the shaft, a hub spool surrounding the
4 shaft between at least a pair of adjacent disk blades wherein a first end of the hub
5 spool contacts one of the pair of adjacent disk blades thereby creating a transition
6 joint between the first end of the hub spool and a surface of the one of the pair of
7 adjacent disk blades, the scraper comprising:

8 a bracket connected to the frame; and
9 a scraper blade mounted to the bracket, the scraper blade having a first
10 end, a second bottom end opposite the first end, a first side and a second
11 opposed side extending downwardly from the first end, the second side including
12 a scraping surface, the second side meeting the second end at a junction point,
13 wherein the surface of the one of the pair of adjacent disk blades is convex,
14 wherein the bracket is connected to the frame and the scraper blade is
15 mounted to the bracket such that scraping surface is positioned adjacent the
16 convex surface, and the junction point is adjacent the transition joint, and
17 wherein the scraping surface has an inwardly curved edge that contacts the
18 convex surface.

1 37. The scraper of claim 36 wherein:
2 the scraping surface has a second inwardly curved edge that contacts a
3 crimp on the convex surface adjacent the transition joint.

1 38. The scraper of claim 36 wherein:
2 at least a portion of the scraping surface is positioned behind the center
3 axis of the hub spool in relation to a direction of movement of the tillage
4 implement.